

AVIATION WEEK

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OCTOBER 31, 1949



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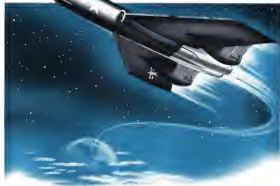
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one more addition to the rapidly growing family of Westinghouse-powered airplanes for the United States military services. **14009**



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HIGH-FLYING planes were having trouble with the seals on their bubble-type canopies. These inflatable rubber seals couldn't take the low temperatures and effects of pressure at high altitudes. They blew out, leaving the bubble at its "scum".

B. F. Goodrich engineers tackled the problem, came up with a new idea for the McDonnell Douglas. They took knitted fabric, rubber-coated inside and out, and tinned it to a soft rubber, channel base. Under pressure, this rubberized fabric (stuck before inflation) increases the size of

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As a result, it's like blowing up a paper bag instead of a balloon. The new seal inflates easier, with fewer, safer pressures. Even at more 65° F. low pressure is reported by the new seal than at room temperatures by the old-type seals.

What's more, the B. F. Goodrich inflatable seal fits complex curves. It's more adaptable, tougher, more damage-resistant. Sealing and unsealing action is faster. Sliding wear and swelling are minimized.

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WORK 15. 1994



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AVIATION CALENDAR

Oct. 18-19—24-hour convention. National Year of State Aeronautics Office, New Orleans.

Nov. 3-4-5—Annual fuels and lubricants meeting, Civic Hotel, St. Louis, Mo.

Nov. 9-10-11—Annual aircraft supply, parts and shipping show, rooms, exhibition, Civic Hall, University Park, St. Paul, Minn.

Nov. 11—South annual meeting, American Development and Manufacturing Assn., Fourth Lick Springs Hotel, French Lick, Ind.

Nov. 16-18—Annual meeting, National Airline Transfer Assn., New Orleans, La.

Nov. 24-Dec. 2—Two-day meeting, American Society of Mechanical Engineers Hotel Statler, New York, N.Y.

Nov. 26-Dec. 2—Annual meeting, Society for Experimental Stress Analysis, Hotel New Yorker, New York.

Nov. 30-Dec. 2—Kansas Airport and Aerial News Conference, Manhattan, Kan.

Dec. 3-11—First Consolidated Aircraft Congress, sponsored by Philadelphia chapter of IAS and American Helicopter Society, in Philadelphia.

Dec. 13-17—National turbine meeting sponsored by the National Aeronautics Assn., Washington, D.C.

Dec. 17-18—Meeting of the Aeronautical Sciences Thrift Council, Southern Institute, U.S. Chamber of Commerce Building, Indianapolis, Washington, D.C.

Jan. 18-19, 1958-10th American Air Museum, Miami.

Jan. 19-20—1958 Maintenance Show, sponsored by American Society of Mechanical Engineers and the Society for the Advancement of Manufacturing, Cincinnati Airport, Cincinnati.

Jan. 25-15th annual Human Flight dinner, Sheraton Hotel, New York, N.Y.

Jan. 25-26-NSA 1958 annual meeting, New York, N.Y. Hotel Aerie, New York, N.Y.

Feb. 16-26—National Sportswear Show, Grand Central Palace, New York, N.Y.

Mar. 16-17-18th annual meeting, American Fuel Builders' Assn., National Fuel Hotel, Cincinnati.

Mar. 25-31—National Plastics Exposition, sponsored by Society of the Plastics Industry, New York City.

April 16-20—Annual Insurance meeting, American Assn. of Airport Executives, New Haven, Hotel, Columbus, Ohio.

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NEWS DIGEST

DOMESTIC

The United Parcel Corp. completed a 29th non-stop flight from Hartford Airport, England, to Memphis, Tenn., on Oct. 10, arriving 4:23 a.m. The air transport made the trip between 6 a.m. and 1 p.m., with a two-hour stopover at Cardiff Beach Airport. Cost had previously been \$200 as it is less than last time. On the same day, a Pan American Airways Stratosliner, the Clipper Flying Eagle, flew 3373 non-stop from New York to London in 19 hr. 46 min. Included in the flight was reported to be about 60 mph. Two Republic P-48 Thunderbolts, piloted by USAF colonels, landed at Farnborough, Scotland, last week on a flight from Wright Field, Ohio. Stop-over points on the flight were not disclosed.

U. S. Supreme Court has refused to review the dispute between Dallas and Ft. Worth, Tex., over development of Midway Airport as the major terminal for both cities. Dallas has been fighting use of CAA funds as help for Midway, claiming the new field would siphon off much of the traffic now using Love Field, Dallas.

Eastern Air Lines has filed suit against the U. S. government for \$300,000 charging that the Navy plane which crashed into an EAL DC-7 in earlier last July was using false identity and registration.

Aircraft industry's production capacity, as indicated by the number of engine tools installed in its plants, has slumped to less than one-fifth of its wartime facilities, according to a survey by "Aviation Week," McGraw-Hill publication.

Aircraft shipments during August amounted to 272 total planes, valued at \$9.9 million, a decline of 10 percent from the 311 planes shipped during July. Total net weight in August was 3,916,500 lb. Total horsepower of aircraft engines shipped in August amounted to 1,235,580, a decrease of 18 percent from a 1,541,000 hp reported for July. Aircraft plant employment showed little change in August from July.

New hypersonic wind tunnel at California Institute of Technology has given a speed in excess of Mach 10. Its head is to be the highest value of air flow yet attained in a supersonic facility. Test section for studying round models measures 9½ in. Operated under Choukner Department contract through an American contractor.

Personal aircraft category of last year's award is under development.

totalled 78 orders at \$24,765, according to the Aviation Industries Assn. August exports were 13 planes valued at \$194,831. Nine companies reported the data.

Boeing Airplane Co. engineering division at Seattle has awarded the Seattle Professional Engineers Assn. an independent engineering, as engineering agent. The SEA was in an election conducted by the National Labor Relations Board, by a vote of 1574 out of a total of 2198 eligible.

"Target Practice" aviation picture on the Consolidated Vulture B-36 bomber, is being shown on television and in movie theaters throughout the country. Under State Department sponsorship, the film, produced by Goetz and company with USAF, will be shown in 77 foreign countries.

FINANCIAL

Boeing Airplane Co. reported net earnings of \$11,775,825 for the third quarter ended Sept. 30, bringing total net earnings for the first nine months of 1949 to \$1,750,175. Unfilled orders as of Sept. 30 totaled \$30,465,767, compared to a dividend of \$1 payable Nov. 14 to stockholders of record Nov. 3.

Chicago & Southern Air Lines reports a \$109,266 net profit for the first nine months of 1949, against \$99,457 profit in the same period, 1948. About \$105,000 of the 1949 profit was derived on the company's domestic routes and \$120,000 on its international operations extending to Canada, Venezuela.

Northwest Airlines reported a seven year net profit of \$1,941,104 at the first nine months of 1949, against a \$1,178,251 net loss for the same period last year.

General Electric Co. consolidated earnings for the first nine months of this year make available net earnings for dividends of \$67,622,870, or 79 percent less than the \$83,901,499 earned in the same period last year. Net sales fell during first nine months of this year total \$1,190,727,401, a gain of 5 percent over the total \$1,121 in the same period last year.

INTERNATIONAL

Cervia Air Home, British helicopter, killed a man, 17,000 lb. in load last month.

Australian aircraft operating on international routes flew 4 million, as in last year without its record, according to the Civil Aviation Department.

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Never the compactness and accessibility of this wiring installation. Aircraft wiring systems such as this demand a wire of great strength and a sheath that resists abrasion, plus the ability to withstand high temperatures. That's why General Electric's Delta-Boston aircraft wire and cables are used on many modern aircraft.

The Delta-Boston best-selling Delta-Boston line includes wires and cables designed for power, lighting, and communication systems, and for instrumentation. All are constructed to withstand abrasion, to resist extreme heat, flame and oil, and to be flame and moisture resistant. These light weight, extra-flexible wires include non-insulated constructions and the flexible silicone-insulated types.

If you'd like to know more about G-E Delta-Boston aircraft wires and cables, or would like help in the selection of the correct best-selling wire for your specific application, your request will bring a prompt reply. Just write to Section Y2S-3082, Construction Materials Department, General Electric Company, Bridgeport 3, Conn.

GENERAL ELECTRIC

Changes

Capt George C. Shepherd, attached to Navy public relations in Washington, is now in the field with the *Albatross* Fleet. Navy officials have turned the transfer routine.

Kaiser Engineers, Inc. has changed its corporate name to Kaiser Industries, Inc. The engineering and construction division will continue to be known as Kaiser Engineers, a division of Kaiser Industries, Inc., Kaiser Bldg., 1121 Broadway, Oakland 4, Calif.

Alfred H. Aronson, former general manager of the Oakland division of Pacific Aerospace Corp., has been transferred to the firm's London, N. I. division as general manager. Raymond F. Volk replaces Aronson at Oakland.

Law Inc. has added Bernard Belmont to its staff as senior engineer and Frederick W. Hux as vice president. W. J. Johnson has resigned as chief designer of the de Havilland Aircraft Co. of Canada.

Appointments

Robert T. Kinnery has been named director of public relations of the Aeronautics division of Fordell Engine and Airplane Corp., effective Nov. 1. The previously Wayne R. Smith who recently became corporate director of public relations.

A. A. Berman has been appointed general manager of Western Coast Works. He is currently vice president. E. R. Nesbitt, general manager of General Motors Corp.'s Alaska division, has been named by GM's board of directors to the corporation's administrative committee.

Promotions

Walter J. Hixler has been promoted to the post of chief test driver of Avco-Deville Engine Corp., Cleveland, Ohio. Hixler has been with the firm for 14 years. Charles E. MacLean, Avco-Deville's chief test manager for Avco, Inc., has become sales manager for all Avco aircraft products. Ray C. Massey has been named secretary-treasurer of General Motors Corp.

Education

R. W. McClellan and M. R. Kornbluh have been selected for graduate fellowships to professors in the University of Illinois' department of aeronautical engineering, according to Professor H. S. Stowell, department head.

Awards and Honors

Paul A. Amgen and Alex F. Manassis became the first men ever to complete 25 years of service with the Hawaiian Bombardment Group of the United States Air Force. Frank T. Tucker, director of advertising of the B. F. Goodrich Co., recently conferred his 25th anniversary with the company.

George H. Buhl, a director of Compton Mica Chemicals, Inc., has been awarded the E. J. Carruth Award by Mexico for outstanding service to aviation.

It can be seen to Adm. Arthur Radford, but the U.S. Air Force has only 103 B-36 bombers delivered as on order. Main point of Radford's criticism of USAF B-36 procurement was that it was all right to order 320 B-36 bombers but that unless for an additional 70 were none and involved "putting all our eggs in one basket." Latest figures on the B-36 show that of the 170 now on order 101 are bombers and 67 are B-36H strategic reconnaissance photo-planes. The YB-36 is also being converted to an RB-36H. USAF plans to buy additional 51 B-36G bombers in fiscal 1950. There has been no criticism of the B-36H and Radford indicated that the Navy might also be interested in using it for photo-reconnaissance.

With the new forward-looking Navy and the "black shoe" surface Navy over the rate of innovation in anti-submarine warfare which is now the Navy's primary mission. More than 500 anti-submarine warfare planes were ordered from the Navy's fiscal 1949 budget before it ever left the Navy Department. Another Navy support role in aviation research and development funds will severely hamper development of a highly specialized ASW type plane. Current Navy thinking leans the Navy mission to hunting subs with surface vessels among the key.

Naval aviation may not have to absorb \$205 million of the Navy's fiscal 1950 budget cut. Top Navy officials indicated that Naval aviation procurement was the only place they could make another major cut for fiscal 1950. But Defense Secretary Louis Johnson indicated he does not believe Naval aviation should take such a large percentage of the total Navy cut. He told the House Armed Services Committee he will have to be convinced that the Navy cannot continue otherwise.

American Aircraft Corp. took a look at the West Coast Aero Company, another two-engine turbine transport prototype, about the time Piper Aircraft started working up the Bessona Republic. But while Piper decided to get into that field American decided production of the Aero Commander was too involved for the returns to be expected.

Piper Aircraft Corp. is doing its best to get from place to place and studying plans to convert the almost finished job into a four-engine jet-propelled turboprop turboprop turboprop. The 10-18R, 1800-hp, four-engine turboprop was shelled back in 1947 when the bottom dropped out of the postwar plane market.

Handley Page Ltd. has been awarded a British Ministry of Supply contract to develop a new RAF training plane with only side seating. The HP-12 will be a low-wing monoplane powered by an Armstrong Siddeley Cherub 17 engine delivering 180 hp in takeoff.

Australia's Commonwealth Aircraft Corp. is tentatively planning to produce the English Electric Co. Canberra trans-jet bomber and the Hawker P109 straight-wing jet fighter. CAC is also working on design of a new two-jet fighter.

General Electric has modified its J-47 turbojet engine to improve its "hot" characteristics. An experimental model, now under test, will deliver 10,000 horsepower in the mid-gate area, before and beyond these thrust through which hot air, fed from the compressor casing, is pumped. GE plans installation of the new design in production models at an early date.

First Northrop RB-35B jet version of the original reconnaissance flying wing bomber, is scheduled for initial flight test this week. The bomber is powered by six Allison J-35 turbojet engines of 3000-hp thrust each. This increased thrust makes possible a reduction in engine inlet area and 4000-hp, with use of the YB-35 engines. Each tests on the Northrop Turbofan, RB-35B by technology engine, avoid complexities before installation in one of the modified B-35s. All of the RB-35B planes to be modified will be used for propeller development work, only and no production of the type is contemplated.

The Russians have done it again—this time a perfect copy of the Soviet Union CG-134. Known as the Ing F V (Viktor) engine, the Russian "engine" was tested in an engine test cell at the Krasnodar during the recent Moscow air show. Avrocar reportedly can catch aerial glider from the cargo bay by its Ingman H-12 transports.



BOEING B-36, with landing gear down; view below and behind B-29 trainer, and within reach of landing tube. Operating on the ground.



TANKER from tube to market in various planes and the transfer of fuel can begin.

New Uses for Air Refueling

'Flying boom' system cuts contact time, ups flow rate and offers hope of adding to jet transport range.

By Alexander McCarey

Significance of the new high volume jet refueling system announced by Boeing Airplane Co. is more far-reaching than the purpose for which it was initially developed—to give U. S. bombers added range.

Transport applications of the Boeing system, both commercial and military, offer to extend the range of passenger-

passenger and cargo planes probably a third beyond present inland limits. And they promise important new assistance in cutting long-range jet transport costs.

Does a Day-Boeing engine indicate that the main bottleneck on the use of refueling for commercial transport will be the economic obstacle of the cost of maintaining a tanker fleet in operation. If the refueling can

be used on possibly as many as a dozen planes a day at a single station, the tanker's operations can pay off in two ways.

The plane can takeoff with a small fuel load and begin its normal passenger and/or cargo load, and then top off its fuel load after it gets airborne.

It can meanwhile wait a tanker at a half-way point on a very long range non-stop flight, for a second gasping.

Advantages—Three main advantages are claimed for the new Boeing system over previous flexible line refueling methods.

Greater fueling flow volume makes refueling time shorter.

Greater ease of establishing contact cuts total fueling time further.

System has been tested at low test pressure and would well.

The new system [first detailed in *American Wings*, Aug. 15] uses a telescoping tube which may be in use of several diameters (12 in., 4 in. or larger). The tube is extended from the tail of the tanker driven to make a connection is a socket at the top of the nose of the receiving plane which has behind and slightly below the tanker.

Smother Flying-Tank position was finally selected by Boeing for the reason also studies showed that other positions, above and to either side of the tanker could also be used. It was determined that the position of the recent (pending) Boeing flying with less turbulence from the slipstream of the tanker's propellers.

The flying boom is fastened close to the tail and extends almost straight back for landings and takeoffs. One end of the boom however can be lowered by controls until it reaches contact point with the receiver.

► **Cautious Track-Track** of controlling the free-swinging end of the boom is accomplished through small actuators attached to the boom. These, known as "traddlers," are manipulated by an operator at the tail of the tender. The literally "free" the free-swinging end of the boom up or down or to either side until he makes contact with the ocean surface.

Experimental operators reportedly became so proficient in this odd variety of flying that they can establish contact with the tender any quickly, in considerably less than five minutes after the plane gets into position.

► **Tender's Versatility**, B-59 bomber converted as a tender is being used in the experimental flights which have been going on for over a year. Recover plane is a B-59 bomber. In addition to its large fuel capacity and control system for the boom operator, the tender is equipped with a thermal position pump system, so that relative positions of the tender and tanker do not greatly affect rate of flow, which is very remarkable to that from large ground-refueling track tanks.

While only one time of planes is now flying, other tasks and services are currently being modified for this unique modification of the receiver plane can be accomplished with minor changes at relatively low cost, another factor pointing toward feasibility of early use of the refueling system for transports as well as military planes.

► **World Flight-Altair** specially recent use of a refueling system has been the recovery under the world flight of Boeing B-59A "Lucky Luck," last February. The plane made the 73,515-mi. round-trip total fuel consumption of more than 50,000 gal. in refueling as the air four times.

System used was the basic flight refueling system. Tanker and receiver planes make contact by radio because of a line tangle from the receiver which is gripped by another line that from the tanker. The receiver plane then hooks in the line and the refueling line stretching to the receiver is made from the tail of the tanker to a socket at the tail of the receiver plane.

► **Radar Beacon**—The receiver plane carries a radar beacon unit which permits the tanker to "home" on the receiver of making contact in periods of obscured visibility. Fuel flow under this system amounts to approximately 120 gpm. Here and is 2-in. diameter.

In developing the flying boom system, Boeing acted on the advice of its prospective testing program. It also built a mockup of the working parts of the boom receiver system and tanker tail section. These were mounted on mockups of the Boeing plane, so fuel transfer was tested in various positions.



VINSON AND JOHNSON: No verbal fireworks but a lot of spitting.

Johnson's Air Decisions Upheld

Navy's major criticisms get 'no score' as super-carrier cancellation order is endorsed by Chairman Carl Vinson.

An unexpected note of unity marked the end of the House Armed Services Committee investigation into national defense policies.

The committee adjourned until Jan. 1 when it will begin consideration of a report on its controversial decision three months of flying changes by a group of broadest Naval personnel of political influence, opposing procurement methods and national strategic planning in the National Defense Department.

Political check of committee was not indicated.

► **Strong endorsement** of the principle of restriction and the Joint Chiefs of Staff strategy and procedure.

► **Approval** of the Air Force's B-59 experimental bomber as the best weapon now available for its job.

► **Clear call** of health for USAP procurement policies and related procedures.

► **Possible** mild criticism of Defense Secretary Louis Johnson's Pentagon views.

"There was no indication that the Navy had scored with a majority of committee members on any of its major concerns."

Highlights of the final session included:

► **Revelation** of a \$15 billion dollar defense budget ceiling already set by the Budget House in fiscal 1951. "This contrasts with the \$15.5 billion defense

budget recently approved by Congress for fiscal 1950. Aircraft procurement in the fiscal 1951 budget is set at \$1.5 billion (\$1.2 billion for UN-1 and 5.5 billion for the Navy) compared with the previous record \$2.7 billion voted by Congress for fiscal 1950.

► **Shaking** of the super-carrier and Commander Chester G. Ford, USN (D. Co.) admitted his understanding last day of Johnson's order canceling the \$150 million USS *United States* project, that would have provided a \$300-million fiscal 1951 aircraft carrier to be used as the prototype for a fleet of six super-carriers.

► **Public disavowal** of the light's detracted fact between Vinson and Johnson over defense budget policies. Vinson indicated his approval of Johnson's current fiscal policies and Johnson denied the House committee it would be asked to act in an all-out major Defense Department budget planning conference.

► **Strong attack** on the discredited proposals by Gen. Omar Bradley, now the acting Chairman of the Joint Chiefs of Staff.

► In his crucial appearance before the House committee, Johnson was, he stated by testimony from former President Herbert Hoover and Gen. George Marshall, former Secretary of State and wartime Army Chief of Staff.

► **But** Like Bradley-Hoover, that the committee that there must be civilian

control over the military and the Secretary of Defense must be the final authority on defense matters with ultimate approval from the people.

He pointed out that he had experienced a similar interview regarding during his administration when the navy was abolished in favor of tanks.

Gen. Marshall said that the real wrangling between the services was always over the defense budget and that anybody who attempted to resolve these conflicts was bound to be unpopular. Marshall said there should be some method for an annual public report of the Joint Chiefs of Staff on the military requirements of the country without any reference to their budgetary needs so the people would have some standard for judging how much of those needs they were willing to support with appropriate taxes.

Johnson, in turn, answered his critics bluntly in a 35-page statement. He vigorously disputed the charge that he had been deceived into the proposed use of aircraft carriers, and that he was misled by Vinson and Rep. Dewey Short (R., N.J.) for verbal points that threatened to produce the fireworks associated by a packed gallery of military brass and civilians. But the facts always pointed out in a shower of mutual complaints before matching opponents.

► **"New" Missiles** — Johnson also charged that the Navy had given the committee misleading statements regarding future war plans in the event of an emergency.

Johnson stated: "A statement was made by those who would have you believe we expect to win war by pebble-bomb tactics and atomic bombs. To the extent that an attempt was made by some witnesses to have this committee believe that we will plan counterplans such a nuclear victory, I suspect that the committee was misled by these



HOOPER: State trouble with the enemy.

BRADLEY: Navy's mission not had targets.

witnesses. I do not know of any competent military man, who thinks we would be able to win a quick and easy victory."

Johnson made it clear that he and not the Joint Chiefs of Staff decide military policy. The JCS did not make decisions by a majority vote but only advised the administration. The first decision by the Secretary of Defense and the President, Johnson told the committee.

► **Johnson**—Clarifying his position on the fiscal 1950 budget, Johnson said he is now engaged in cutting that budget to that the fiscal services will fit into the \$13-billion ceiling imposed by the fiscal 1951. He said that this was distinct from the billion dollars in savings he proposed to make in the fiscal 1951 budget.

He said that \$500 million of those savings, as distinguished from reductions, had already been accounted for the fiscal 1951 budget through elimination of aircraft, cancellations, and dropping non-essential services.

Johnson refused to commit himself on whether the defense establishment would spend the extra \$500 million voted by Congress for the USAP in fiscal 1951.

► **Pinch** for Funds—Vinson interrupted Johnson to state that he would make a strong case to President Truman for the withdrawal of the additional money voted by Congress for the Air Force, and expressed confidence that the President would not ignore the \$500 to 1 vote at the House on that subject. Johnson offered to permit Vinson's views to the President of Vinson was able to do so personally.

Gen. Bradley loudly warned the Navy that it had a difficult role in any future war against a land power than that at its island hopping days in the Pacific. He explained that Naval

aircraft had a difficult role in any future war against a land power than that at its island hopping days in the Pacific. He explained that Naval

Bradley stated, "Because of this I have argued that there be maintained a service task force whose planes now possess the capability of penetrating 700 miles inland," Bradley said. "However, I believe that except for purely Naval operations, the use of carrier forces against land targets is limited. They would be used temporarily to reinforce Air Force units in hazardous areas or in situations requiring employment of air forces for a limited period only."

► **B-59 Endorsed**—Bradley told the committee that Navy prohibitions to JCS for expanding carrier aviation were not based on requirements for action against a Russian fleet in submarines, but to attack land targets and support every situation in limited areas for a limited time.

That, Bradley said and not the Navy's primary mission.

Bradley endorsed the USAP B-59 experimental bomber as the best choice for its job and added:

"Along with many others, I believe that the atomic bomber, which has been developed, and the USAF Strategic Air Command which has been developed, have contributed to the advance of our defense in the last couple of years. This combination has been, in my opinion, one of the greatest decisions in aggressive policy here and in Europe."

Now American Goes Skycoach

Catholic coach service showed every intention of becoming a permanent and highly important factor in scheduled air transportation this month at American Airlines, the largest carrier, announced plans for starting transcontinental flights with 75-passenger DC-4s at 94 cents a mile.

If the Civil Aeronautics Board approves, AA's low fare operation between New York, Chicago and Los Angeles will begin Dec. 27 with one roundtrip daily. Next spring, American intends to replace the high-fare DC-4s with 75-passenger DC-6s.

► **Higher Than Average**—The 45 cents-a-mile fare schedule proposed by American represents a half-cent increase over commercial coach rates. AA would charge \$110 between New York and Los Angeles. Principal airlines would carry in the next rate change \$99 and some \$85 or less. Northwest Airlines' low-cost route New York/Seattle coach tariff is \$97.

Between New York and Chicago, American's \$110 fare is a little over one cent more than \$109 for Northwest's air-

now operated by Capital Airlines and TWA.

►Northern Thailand—If American's bid fails as expected, it will have a tremendous impact on nonaligned operations, which have found the New York Los Angeles run to be their most profitable operation. Even with last year's high duty and rate of \$110 against \$60 as low for the worldwide, AA could put a sizable dent in the nonaligned carrier's business.

When Western Air Lines of California started competitive coach service on the San Francisco Los Angeles run last August, scheduled load factors on the line dropped from between 70 and 90 per cent to well under 50 percent. GWA as a result had to stop its inter-California operations because of heavy losses over three weeks after WAL California began cut-rate service.

►UAL Too—A further threat to non-aligned on the transcontinental route is the possibility that American's coach service may force United Air Lines to begin similar operations. UAL president W. A. Patterson has repeatedly expressed fear that too much air coach would completely demoralize the existing air structure. But he has also called air coach "a wonderful experience...one out of five waiting and may go into."

TWA already operates coach service from New York to Chicago and Kansas City to Los Angeles.

American has been studying the economic profitability of air coach ever before Capital Airlines became the first continental domestic carrier to adopt the low-cost service last November. President C. R. Smith still believes the airlines can't afford to lose it, but studies have shown that converted 747s generate plain air fare in coach revenue at least twice as high as government DC is at the regular fare.



LATEST GLOSTER METEOR

Flight view of the Gloster Meteor V11 showing the elongated nose housing extra fuel tanks and the redesigned tail aimed at providing greater stability at higher Mach numbers. The Meteor V11 is powered by

Italy Makes Deal For British Jets

(McGraw-Hill World News)

MILAN—The procurement programs to be carried out in connection with the Atlantic Pact will have important results in lowering the Italian aircraft industry, according to Minister for Defense Procurement. For months ago Italian military quarters in drive of putting jet aircraft from the U.S. had succeeded in securing a majority over those who were in favor of an agreement with British de Havilland companies. The Italian government now believes that the best means of securing jet aircraft for the Italian Air Force is through cooperation between the British and Italian aircraft industries.

►Vigoretti Chosen—According to the latest progress worked out by the Italian Ministry of Defense, Italy should purchase 50 Vigoretti from Court Britain, among a portion of the Italian credits in pounds still blocked in London, together with the license to build such aircraft in Italy. The 16 Vigoretti are to be delivered by March, 1955. Fiat will build Vigoretti in their Aeromobili d'Italia Works in Turin and will distribute the orders between the Aeromobili Macchi di Varese, the Aeromobili Works of Sesto San Giovanni, and Caproni of Trieste.

The Golden Jet engine are to be built by Fiat and Alfa Romeo. Two hundred fifty jet aircraft are to be built in Italy as a last part of orders made by British Air Force recently completed. However, it was emphasized by the General Secretary of the Association of the Milan Industries, that the Italian had not proceeded from using jet fuel on ships to create orders for foreign countries as well.

In addition to this arrangement it



HIGH SPEED FACE SHIELD

Northing X-4 test pilot Charles Yeager dropped his face shield attachment to protect the pilot's face and prevent the helmet from being torn off in an ejection seat but out at high altitude and velocity. Yeager said, in fact, as with the new looking through the helmet face shield is kept to the helmet and may be removed if desired. Instead one of the helmet is kept to the helmet and may be removed if desired.

has been confirmed that the Brode RG-208 civil transport have been approved by Argentine government for use in Argentina lines Atlantic lines.

Copter Rules Changes Questioned

Some helicopter industry opposition to a proposed revision of Civil Air Regulations, Part 61, Revision of Aerobionics, has been disclosed by Aviation Week, following circulation of the proposed new draft for comment. Additional comment is expected after a meeting of the Helicopter Council in Washington next week, and after more thorough studies of the draft revision by helicopter companies and aircraft industry associations.

The revision aims to establish two categories of rotorcraft: transport and normal. Transport would be used to passenger transportation for hire and other regulated items, while normal category would be for personal aircraft and industrial aircraft use. Many differences proposed are with respect to flight performance and emergency exit. (Source: *Aviation Week*)

First industry reaction is that the division into two categories will not be

helpful to the struggling rotorcraft industry. It is felt that in the early stages, and until more helicopters are in use, many operators will want to use the same machines for both types of operations, and without artificial barriers preventing such dual use.

John M. Chamberlain, director of the CAB Bureau of Safety Regulations has asked that industry comments on the draft revision be addressed to him at 400 Washington St., D. C.

Comments will be considered in making a final draft of the revision and if sufficient controversial comments are received a great industry-government hearing will be considered for further study of the issue.

PAA Local Hit

The international executive board of CIO Transport Workers Union has adopted changes against the Pan American Airlines Local 164 board members.

Michael J. Quill, international president of the TWU, charged the local leaders with "conspiring to bring about destruction of the international union," added by Quill, "whose loyalty is to an organization or group or organization in the interests of the membership of our union and of our American democracy."

Quill's charges were acted upon by the union, which voted the local's assets, funds and property, to action was to be its most bitter last July against Pan American Airlines Local 164 in Miami.

Trans-Australia Plans Early Jetliner Debut

(McGraw-Hill World News)

MELBOURNE—Trans-Australia Airlines expects to put its first Aero C-102 jetliner in service by November, 1955.

The craft, which will cost about \$167,000 in Canadian dollars, will be operated partly as a freighter during its trial period. The new airliner is under production by Edeco P. Maréchal, chief designer of A. V. Roe Canada Ltd., that the turboprop transport probably would make an debut on the short-haul inter-city routes of Australia (Aviation Week, Oct. 10).

►Most Test Canadian—Airs and good weather, relatively simple route structures and traffic conditions in Australia is reason why that country and Canada offer the best areas for working out economic and operational problems of the aircraft.

If a sufficient market for the jetliner establishes in Commonwealth countries, the craft may be built in Aero's factory in England. Such a move would make possible in volume in cost of dollars, a great advantage to prospective purchasers located in the cooling area.



AJ-1 Navy Bomber

First flight view of production North American AJ-1 Navy bomber in front line position and equipped with wing tanks. Tests recent version for its capacity to be loaded for use on F4M and F36 (modifications) to focus tests clear upon release. Wing and its full up (below) by release distribution to enable longer flight, manage arguments. Note jet on engine stop bogging down during flight. AJ-1 is powered by two Pratt & Whitney R3350 Double Wing engines of 2100 hp each plus Allison J35 turbojet engine in the lower rear fuselage. High speed cruise has top speed of 412 mph and a 1370-mile radius of action.





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Developing McDonnell Banshee

F2H, initially conceived as larger version of Phantom, emerged as a completely new plane, with the greatest fuel load of any Naval jet.

By Robert McLennan

The ink was barely dry on the contract for quantity production of the McDonnell FH-1 Phantom when an additional agreement was signed for construction of six versions—the large NF2D-1 jet fighter.

Evolution of the FH-1 (later named F2H) into the NF2D-1, later designated NF2H-1, was straightforward. Increased performance required additional power and reduced drag. Increased combat effectiveness required additional fuel and added firepower. These, in essence, were the major factors in development of the fighter.

► **Design Approach**—First step was to lecture, for the prototype, of the Westinghouse J4C (Nav. J44-WE) axial flow jet engine, which had a design power output of twice that of its, 19B used in the Phantom. The J44-WE 72 produced 3600 hp thrust at 12,900 rpm, and weighed 1150 lb, compared to only 920 lb in the 19B.

This added weight, diameter and power obviously meant a large airplane, and the major design problem encountered with the Banshee line lies in the result of this size increase.

The original approach was a simple scale increase in the layout of the Phantom. While this served as a

first approximation, design had not proceeded very far before a shilly-shally craft emerged.

Except for retaining the FH-1's perceptible placement arrangement, the F2H Banshee fighter is a separate and independent aircraft design. But the same lessons learned from design, production and flight success of the Phantom line have been incorporated.

► **Drag Reduction**—With the problem of added power solved, the next factor was drag reduction. McDonnell says most chose a thinner profile for the wing and empennage, and laminar flow techniques were employed that produced a ten-per-cent reduction in drag over the Phantom.

This reduction in drag had proved as effective, that at 34,000 ft, the pilot can fly at the critical high speed with the throttle pulled back to the idling position (flying thrust is approximately 58-65 percent maximum thrust).

Due to the carb problems in wing design, a solution of the seat section. The J44-WE 22 engine, a 24 in. diameter, 120 in. long, and the cylinder had to be accommodated within this seat section.

With critical Mach number demands rapidly rising, increasing wing thickness the only feasible way to plan this thick wing was not to increase its chord as much as possible. The wing root

of the Banshee is about 18 ft. long and has sharply tapered leading and trailing edges. The long chord produces a root section that, despite its increased height, has a thickness ratio of substantially less than 20 percent. Use of a high inlet velocity ratio intake in the wing leading edge at the root actually provides a reduction in drag over the same section. Thus, the actual Mach number of the wing root section is actually higher than the upstream Mach number.

► **Andol Reduction**—An NACA 65-212 airfoil using a medium load section has been chosen for the wing root at the wing fold. This section has its maximum thickness at 90 percent of the chord, a design lift coefficient of 0.7 and a 12 percent thick. While the laminar flow profile has a low value of minimum drag coefficient of about 0.004, this low drag is obtained at a pitch in a range of lift coefficients over which it may be obtained. This value is less than 0.1 above and below design lift coefficient, indicating that the craft's drag increases sharply at low speeds, such as takeoff and landing, reversed flow, and stall.

The outer panel layout is an NACA 61-299 profile, also with a medium load section line. This section is only nine percent thick, has a design lift coefficient of 0.2, but has its maximum

thickness at 40 percent of the chord, a design lift coefficient of 0.7 and a 12 percent thick. While the laminar flow profile has a low value of minimum drag coefficient of about 0.004, this low drag is obtained at a pitch in a range of lift coefficients over which it may be obtained. This value is less than 0.1 above and below design lift coefficient, indicating that the craft's drag increases sharply at low speeds, such as takeoff and landing, reversed flow, and stall.

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ACCESS DOORS on underside of wing add to engine intake.



FLAPS under engine are forced to fit curve of wing.



KNIFELING GEAR on sweptback fighter poses problem of storage in carrier deck.

thickness at 40 percent of the chord, a design lift coefficient of 0.7 and a 12 percent thick. While the laminar flow profile has a low value of minimum drag coefficient of about 0.004, this low drag is obtained at a pitch in a range of lift coefficients over which it may be obtained. This value is less than 0.1 above and below design lift coefficient, indicating that the craft's drag increases sharply at low speeds, such as takeoff and landing, reversed flow, and stall.

The outer panel layout is an NACA 61-299 profile, also with a medium load section line. This section is only nine percent thick, has a design lift coefficient of 0.2, but has its maximum

► **Engineage Redesign**—Despite the excellent work on wing intake, McDonnell engineers might have logically designed a 63 section at the root and a 65 section at the tip. McDonnell engineers reversed this, apparently in order to reduce the intake. This followed the same pattern, as the FH-1 Phantom. The modification produces a "sweep forward" effect which also reduces the danger of spanwise flow, particularly in combination with the straight leading edge used.

In order to keep the height during folding down to within that of the Phantom, the wing fold line on the Banshee was placed at about 75 percent of the wingspan. These also were important aerodynamic reasons for this shift in "envelope" the folding portion of the wing, and since it is the low-drag portion of the wing, a fairly substantial drag gain. The outer panel being retracted means its bending moment resulting in lighter structure. However, this marginal gain has been nullified largely by addition of tip tanks in the new F2H-2, forcing a substantial "half up" of the outer panels.

► **Revised wing folding hinge**, which

forces the wings to fold past the air fuel tank and to touch above the fuselage. A downward instead of sideward retracting arm was used.

► **Armament location** in the lower instead of upper nose.

► **Increased landing linkage**.

► **New landing gear**.

► **Revised flap track arrangement**.

► **Smother skin surface**.

► **Thinner section**.

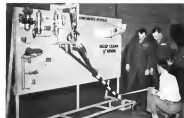
► **Heavier armament**.



ENGINEER are supported in cut-outs in spars.

In addition, the F2H-1 is broken down into a greater number of access lines for ease production.

► **Wing Structure**—Base structural part of the Banshee is the wing center section, continuous from fold line to fold line and a built-up of heavy fuselage, heavily stiffened with and around flange ribs and subsonic. Engines are supported in a hollow cutout in the two main spars with removable tie beams on this subsonic. Engines are stressed by detaching access doors on the underside of the wing, then the tie beams, and lowering the engine to a stable. This system not only simplifies the removal of engine access for



ARRESTING HOOK, indicated by pointer, is new type that is actuated hydraulically to *average* nose. Entry gate, however, is reset and lowered electrically.

McDonnell F2H-1 Banshee

Basic Data

Two Washington Field Office 3140 lb thrust

Span	41 ft 6 in
Length	39 ft 3 in
Height	14 ft 3 in
Span (wing folded)	18 ft 4 in
Height (wing folded)	13 ft 7 in
Wing Load	15 lb/sq ft
Weight (empty)	9100 lb
Weight (Max. gross)	14,000 lb
Weight (over, overland)	17,000 lb
Speed (max sea level)	775 knots
Speed (max, cruise altitude)	500 knots
Speed (40,000 ft)	435 knots
Rate-of-climb (sea level)	5,000 ft/min
Time-to-climb (40,000 ft)	74 sec
Climb	46,000 ft
Radius of action (20 min. combat)	630 mi
Range (empty)	2,190 mi

the job but preserves the critical upper surface of the center section. Outboard portion of the center section houses fuel tanks.

Outer wing panels are built up on a conventional spar box beam with separate leading- and trailing edges. Airframe is stressed and wing bracing and balancing tabs. Electrically-operated dive brakes are mounted flush in the outer panel leading edge just ahead of the inboard flaps. Flaps are in six segments, one in each main panel, two in the outboard portion of the center section, and one under each engine. Flaps are to fit the compound curves of the lower wing surface and the engine firing path.

■ Landing Gear—The landing gear is short wheel track. Main wheel tire is 22 x 7.25-16 low-pressure Nylon and carries 80 lb of air. Main gear is 25 x 6 and is 12 1/2 in. wide. Nose gear is 25 x 6 and is 12 1/2 in. wide. The nose wheel is mounted in a heavy forging with the axle supported at the front and rear by cantilever struts. The nose gear may be retracted on the ground to permit the airplane to "taxi," simplifying the problem of compact storage on the carrier launch deck since the nose of the aircraft can be placed directly under the tail of another. Carrier deck arresting hook is mounted under the lower wing hinge and is electrically operated. It is a new rotating "full-

freedom" type with the hook hydraulically operated from the cockpit, thereby freeing the arresting cable. This device is a telescopic extension to the gear box in which many engineers would require additional detail. Electrically-actuated catapult and hold-back fit straps are mounted in the wing lower surface.

■ Tail Surfaces—Aluminum saddle and elevator are statically balanced and carry trimming and balancing tabs. Elevator travel a free and fixed firing to the under telescopes into electric launch.

■ Cockpit and Instruments—The F2H-1 cabin is pressurized, but is not a constant pressure, a pitot-static canopy, and an eye line seat.

Also, AN standard cockpit layout has been followed except for adjustable 31st panel windshield in front with curved side panels. Single blown ring up is electrically operated for low-to-all movement. Standard Navy flight instrumentation, including dual, controlled instrument, is included. Area swept consists of less than 50 sq ft of radiant gas mounted in the lower nose. The fuselage structure light weight construction, but greatly simplifies gun servicing and the operation of guns and turrets.

Like the Phantom, the Banshee is basically an all-weather airplane with wing folding, leading edge retractable, wing flap operation, deck arresting hook and catapult hooks being operated by electric motors. Only wheel brakes and head firing mechanism are hydraulically operated.

Vacuum for gyro-operated instruments is obtained from the engine air outlets, and a positive air filter can conditioning is built from the compressor.

■ Fuel Supply—This is entirely auto meter and maintains approximately 1600 lb of fuel.

Landing gear automatically, report no attention from the pilot. Tire tracks on the F2H-2 and another 3000 lb of fuel, giving the airplane the largest fuel capacity to be found in any Navy jet fighter.

The Banshee's two Westinghouse J14-W-3 turbojet engines in the production model develop 3150 lb static thrust each at 14,000 ft. Each engine is 130 in long, 24 in diameter and weighs 1200 lb net, although the complete installation with all accessory equipment weighs about 2000 lb. There are 11 stage air flow compressors, two turbine stages and an integral oil cooler.

It recently completed the new AN MK-16-800 gun, which is 170 in long, the first engine of any size or model to do so. This new type test rig gives 21 hours new military rating operation than the former test. It also

requires a base in many rapid acceleration times from idling to full speed in various requirements.

■ Banisher History—Contract for the design, construction and flight test of prototype XF2H-1 was awarded to McDonnell Aircraft Corp. in March, 1945. Al Ghann was appointed Project Engineer and the design proceeded rapidly with the first flight made by McDonnell test pilot, Robert M. Edwards, Jan. 13, 1947 at Lambert St. Louis airport where the company is located. A production contract was awarded for 76 airplanes in May, 1947.

K. M. Dege was appointed project engineer on the production airplane and the first craft rolled off the assembly line Aug. 15, 1948. Prior to delivery of the first production F2H-1, the Navy awarded McDonnell an additional contract in May, 1948 for 170 F2H-2 two-seat fighters. By May, 1949 the production F2H-1 completed its major qualification trials aboard the USS *Famulus* II, Honolulu and was declared fit for combat service. Production on the original contract for 76 F2H-1s proceeded rapidly and the last airplane was delivered according to schedule in August, 1949.

First F2H-1 assignment was made in March, 1949 to Air Group 17 located at NASC Ford Field, Jacksonville, Fla. Two full squadrons are now in service. Banshees are also located at NAS Alameda City, N. J. and NATC Patuxent River, Md.

■ Banshee in the News—Following a lengthy period of static Navy security the Banshee recently has been revealed in several spectacular performances. Late in August, 1949 while the B-36 investigation was going full blast in Washington, an F2H-1 was introduced to 12,000 ft, the highest altitude officially reported for a U.S. jet fighter. Aerial pictures of Washington, D.C. were taken from an altitude of 50,000 ft.

The plane spent approximately in the 1949 National Air Race from F2H-1 from Air Group 17 took off from the carrier USS *Midway* off New York City and covered 432 mi. in Cleveland, August in the *Atlantic* and *Wing* Navy Jet Race. Wings were at 27,000 ft, 129 sec. was set by Lt. J. R. Lund, an average speed of 545.97 mph.

In another noteworthy performance, a modified F2H-1 was at 40,000 ft. in 38 sec. in a special Westinghouse-sponsored competition at the Races.

McDonnell Aircraft Corp. is currently working on a 31 million Navy contract covering production design, wind tunnel test and installation studies of the XF2H-1, as well as details have been revealed.

AVIONICS



Radiofrequency components of test rig for 6SN7GT electron tubes. Normal, regular test is seen at left. "Ruggedized" version, right, exhibits heavy, rigid external mounting.

Stronger Tubes for Harder Usage

"Ruggedization" program stresses test methods to aid in developing more durable electronic components.

Designers and manufacturers of avionic equipment will benefit from test and development data now being consolidated in a comprehensive electronic tube "ruggedization" program of the National Bureau of Standards.

Recent rugged tests are essential for electronic devices subjected to severe conditions of vibration, shock or acceleration, but methods for determining stiffness and dissipation are key factors in development of these units. These methods are now being studied and developed in one phase of the ruggedization program under the direction of L. L. Cherrick of the Bureau's electronic tube laboratory.

■ Defects Indicate Design—Part of the program consists of a survey of the actual operating conditions for electronic tubes in various commercial and military applications, to provide a pertinent basis for design of test equipment to simulate the harshness of actual use.

And in addition to test methods, the Bureau is developing new types of rugged tubes. Their design is based on an analysis of how ordinary tubes fail under test or in service. Thus, a detailed knowledge of operating conditions and tube failures is an important guide to the design of tubes that will be strong enough to operate properly under severe mechanical abuse.

Some tubes may have to withstand great extremes of temperature as well, but, in any case, mechanical design of a rugged tube is strictly governed by re-

quired electrical properties.

■ Equipment, Procedures—The Bureau facilities for testing tube changes now include vibration apparatus, mechanical resonator system, high impact shock machines, and high-speed centrifuges.

Some tests are conducted with typical electronic potentials applied to the tube elements so that some modulation, static currents, and other effects can easily be studied. Reproductive field conditions can be reproduced through proper choice of voltages, currents, impact, and acceleration tests.

After receiving various ruggedization tests, tubes are examined for structural failure. X-rays sometimes are used to assist the visual inspection. Changes without opening the tube envelope. Materials for some tube elements are examined spectroscopically to determine most composition and impurities that might weaken the tube structure.

This determination of the cause of tube failure is an important part of the program. One of three studies will also recommend specifications for materials best suited for specific rugged conditions. In some cases new tests, rules and new methods of fabrication must be developed to meet unusual requirements.

■ Mechanical Vibration Tests—Vibrators produce the most common mechanical stress encountered by electronic tubes under service conditions. Continuous and intermittent vibrations are

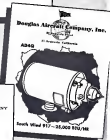
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Weighing only 1 lb., unit flashes lights 40-60 times per minute through magnetic hysteresis control. Device is represented to be unaffected by temperature and altitude changes and to give at least 100 hr. of trouble-free operation. (maker advises replacement of unit at that time). Total battery drain for direct plus flashing lights is claimed to be less than current required for steady lights. Flasher is shielded against radio interference, is unresponsive and easy to install. It comes in four models for operation on 6, 12, 24 and 36 v. dc. With Model 1008S three-way switch, flashing lights can be changed to steady burning.



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Device may be operated on single interval unit with manual initiation, or as repeat cycle timer with adjustable intervals occurring successively for indefinite period. Converting from single interval to repeat cycle operation merely switch in electronic initiation of "off" cycle control to desired "on" operate time. "On" cycle knob is for adjusting interval time space. Device has provision for connection of foot switch for manual operation. Specifications: Power supply, 60c, 110-125v. a.c.; time intervals, on-1 to 3 sec., off-9 to 20 sec.; single pulse-width timing relay with contacts rated at 3 amp. 115v. a.c.; chassis dimensions, 9x6x1 in.



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Developed by Engineers Specialists Division of Universal Engineering & Callography Co., Inc., 590 Elmhurst St., Buffalo 8, N. Y., machine is represented to offer three advantages: first, semi-automatic operation; second, permanent adjustment record of the size, and periodic quality control check for the size. It checks master or duplicate die set, or work, in relation to master chart, and distinguishes between die and forged part.

Machine also permits operator to view simultaneously entire die set, bush or gage profiles and striking surfaces of any desired cross-section of dies and punches. Flashing operation or tool flashing of die set is made without removal of part from device.



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Designed for complete control of all SSB, VHF and similar instruments, the SSB-1 bridge and amplifier, offered by Elin Associates, Box 77, Pelham 63, N. Y., also drives any standard cathode ray oscilloscope.

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Device is designed to cover wide range from static to high frequency; it calibrates at any time during test.



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FINANCIAL

Capital Seeks Financial Freedom

Airline proposes new \$7.4 million recapitalization plan to buy new equipment and offset debt restrictions.

Capital Airlines may soon complete its long desired recapitalization. The company was plagued with financial difficulties as a direct outgrowth of the seizure of a \$10 million stake at 15 percent debentures in December, 1946. This financing, sponsored by White, Weld & Co., was discontinued as it placed the company in a straitjacket and denied it any flexibility to meet subsequent problems. While sold as a bond, this was assumed more of the characteristics of a convertible preferred stock. Nevertheless, the admission for these bonds to outflow the operations of the company is to include any additional financing.

Their counterparts are needed in that at the time of the past financing market conditions would have readily permitted the sale of a convertible preferred stock. Having sold preferred stock, Capital would have retained the freedom to conduct upon additional financing as circumstances dictated.

Interest on this debenture issue was paid as scheduled during 1946. However, as default operations were sustained for that year, it became impossible for the company to pay the interest when due during 1947. The same condition prevailed for 1948. Early in 1947, related actions were made by White, Weld & Co. to acquire the company's business. None of these plans succeeded, largely because they would take valuable rights away from the debenture holders without giving anything in return.

■**Banks Aid**—In the meantime a group of banks loaned the company a total of \$4 million late in 1946, intended as short-term financing with the security company scheduled for May, 1947. Unable to pay this loan when due, Capital was forced to seek secured extensions from the group headed by the Chase National Bank. The lending group presented a considerably restrictive attitude toward Capital, granting periodic extensions of the loan and refrained from pushing the airline into reorganization. This confidence proved well justified.

Financing management changes were effected about a year and a half ago which led to a complete reorganization and a new sense of direction.

These changes revitalized the company and it was able to record an astounding recovery in operations largely as a result of its own efforts. The Civil Aeronautics Board also took cognizance of the changed circumstances and granted the company increased mail pay, as a carrier and selective basic.

■**Loans Repaid**—As a direct consequence, Capital was able to pay all bank amounts and return on a cash basis in April, 1949. Further, all past delinquencies in the banking field have been repaid. The debenture issue was paid. In fact, in the debenture retirement the year, by acquiring such bonds through tender of a document the company realized a net profit of about \$800,000. The debentures were accordingly reduced to an outstanding sum of \$7,265,000.

The bonds also were outstanding. Early this year, \$1.5 million of the bank loan was repaid. Continuing improvement to the company's finances permitted a further re-payment of \$2,125,000 of the bank loan on September 15, leaving \$750,000 of the original \$4 million loan outstanding. This balance will be paid by Jan. 31, 1950.

■**Stock Sell Freedom**—Despite this startling financial comeback, Capital still desired complete freedom with which to meet competitive conditions in acquiring badly needed new equipment. It remained necessary for the company to remove the shackles of the restrictive provisions of the outstanding debentures.

After an abortive attempt earlier this year, under new investment banking sponsorship, Capital is now advancing a recapitalization plan which it hopes will grant the management the desired freedom of action and be equitable to all classes of security holders.

This plan proposes to create two new series of debentures to replace the existing securities outstanding. The new series would be called Series A and B, each in the authorized amount of \$7.7 million. It is obvious that these two series aggregate \$7.4 million as \$285,000 short of the total amount of outstanding issues of the present bonds. The company has been anticipating the asking bond payment of about \$900,000 due by May 1, 1950, and has been

waiting bonds in the open market and presumably would hope to complete each purchase concurrently with the redemption of this plan.

If the exact asking bond payment were to be estimated, about \$650,000 principal amount of the present debentures could be acquired at present market prices, thus reducing the outstanding issue to slightly more than \$7 million. On this basis, the new Series A and B may actually be stated to the extent of only \$5.5 million each.

■**Type of Bonds**—The new bonds would bear 4 percent interest and have the same maturity as the present debentures, Sept. 1, 1948. Series A, however, would have a fixed interest rate, cumulative, and not contingent upon earnings of the company. A sinking fund of up to \$500,000 annually would also be made available to the firm after certain adjustments providing for any requirements on the financing reserve 15 percent debentures to be outstanding.

The new Series B debentures will pay interest cumulative only if earned. Further, each \$500 principal amount would be convertible into 45 shares of common stock at the rate of \$11.11 per share.

The terms of exchange provide for \$500 principal amount each of the new Series A and B for \$5,000 principal amount of the present 15 percent issue outstanding.

In return for this more attractive reorganization, the present debenture holders are to receive 45 shares of the various restrictive factors now surrounding the enterprise. The company is seeking the right to issue total debt not to exceed \$15.5 million. With such additional borrowing authority, the company will then enjoy greater flexibility and be able to finance required new equipment.

■**Other Plans**—A very unusual arrangement has been made in acquiring Swiss Consolidated Air Lines of Switzerland Corp. under a lease purchase contract (Aircraft World, Oct. 24). These planes are to be delivered to Capital in June, July and August of 1950. A total of \$17,500 per month per aircraft is to be made for an 18-month period. All rentals will be applied to ward the purchase price of \$684,900 per aircraft.

Capital also plans to modernize its two-engine fleet by introducing the Super DC-3 over its system. Thus far 3 of these planes have been ordered with indications that an additional 17 will be acquired during 1951 and 1952.

The company's recovery demonstrated by Capital is expected to continue in effective backdrop with which to effect the present recapitalization plan.

—Selig Altschul

PAN AMERICAN OK's new

"Tremendous Power Provides Extra Safety"

"The tremendous reserve power of the Convair-Liner's two 2,100-horsepower engines provides an extra margin of safety," says WILBUR L. MORRISON, vice-president, Latin American Division. "This is the first thing Pan American World Airways demands of any new Clipper for its Latin American routes, where an enviable record of almost two-and-a-half billion accident-free passenger miles has been chalked up in the past four years."

"The Convair's extra passenger capacity helps PAA being air travel within the pocketbook reach of a still wider group of potential travelers, in line with the company's long-established policy of making the benefits of air travel available to the common man."

"PAA—America's first and largest international airline—has always added the best in new equipment as soon as it was available, and we are proud to welcome the Convair to our Clipper fleet."

"Ideal for Shorter Hauls"

"From an operational standpoint, the Convair-Liner is an ideal airplane for PAA's shorter hauls," says OLIVER J. STEINMAN, operations manager, Latin American Division. "Its performance reserve, flight characteristics, and advanced design give it outstanding flexibility. This is reflected in more 'on-time' operations because of improved route patterns, ease of maintenance, ground handling and overall superior dependability."



WORLD AIRWAYS CONVAIR* Liner

"Profitable Payloads from Shorter Runways"

"Pan American World Airways' 20 new Convair-Liners admirably solve our short-land problems," says HERMAN W. TOOTHY, manager, Latin American Division. "We needed a two-engine Clipper with increased seating capacity and fast-engine speed. The Convair provides this much more efficiently than four-engine equipment for flights under 500 miles."

"Even on short flights it can climb quickly above unstable tropical air for smooth, over-weather flying. Its 30,000-foot ceiling enables it to clear the highest mountain ranges encountered on PAA's 70,000-mile network of Latin American routes. With the Convair we can also operate with a profitable payload from shorter runways than with four-engine equipment."



"Truly a Pilot's Airplane"

"PAA pilots have found the Convair-Liner ideal from an aviator's viewpoint," says LEONIS C. LANSLEY, chief pilot, Latin American Division. "It is maneuverable and easy to handle. They are enthusiastic about its pilot-designed cockpit and its automatic feathering, reversible-pitch propellers, which greatly decreases the landing run, with less wear and tear on brakes and tires."

"Our pilots also like the Convair's pressurized cabin, which maintains low-altitude pressures even when cruising at over-weather altitudes, thus eliminating the anemia which is mainly responsible for pilot and passenger fatigue."

"The Convair-Liner is truly a pilot's airplane."



**Consolidated Vultee
Aircraft Corporation**

SAN DIEGO, CALIFORNIA
FORT WORTH, TEXAS

SALES & SERVICE



ENGINEERS test latest prototype; initial customers expect vehicle in sales campaign

Colonial Builds Light Amphibian

New York firm to produce 2-3 place pusher tentatively priced at \$9750. Plane has crash safety features.

A small 2-3 place pusher amphibian designated the XC-1 Skimmer has been produced by the newly formed Colonial Aircraft Corp. of Huntington, L. I.

Price of the turboprop-guzzler unit tentatively placed at \$9750. Fly-out prices, and first production units are expected to be ready for delivery by June 1970. AMERICAN WEEK was told that the company now has 50 firms or more on hand and production is planned at two Skimmers weekly.

• **Crash-Resistant Cockpit**—A prime feature of the new plane is a crash-resistant cockpit, which follows the recommendations laid down by Civil Aviation Research group.

The cockpit has:

- Seats built into the plane's structure.
- A control seat designed to gradually bend forward if the pilot's body places an impact on it of approximately 6 Gs.
- Instrument panel located so that head clearance is assured when the body pivots about the safety belt.
- All body crushing structure and protection behind seats.

In addition, the engine mount, located just behind the seats, is stressed for an impact of 20 Gs.

• **Good Stability Control**—The Skimmer is of all-metal construction, with fully cantilevered wing and single-actuator braced horizontal tail surfaces. The wings are located just behind the cockpit, affording good visibility. Sketched design created 50 percent of the span, and the wings have two degrees of aerodynamic and pneumatic washout, which combined with differential aileron control (40 deg. up and 5 deg. down) are stated

to give good roll control up to and through stall conditions. When properly trimmed, the Skimmer is designed to take off and land on water by itself. Flaps are hydraulically controlled by means of an electrically driven pump.

Span is 74 ft., length about 23 ft., height overall approximately 9 ft. Wing area, including ailerons, is 156 sq. ft. • **Performance**—Fuel system is a Leconing C-232C1 of 115 liters (3.1 gal.) with a 75-hp. 4-cylinder horizontally-mounted variable pitch prop. Performance revealed that the in-flight tests shows the Skimmer has a 500-fpm climb at a gross weight of 1990 lb. (1600-lb. net weight). When cruising at 110 mph, with that weight, range of 630 mi. is



charted, with one-hour fuel reserve. Fuel capacity is gross at 48 gal. Top speed is said to be about 150 mph, and landing speed, 55 mph. Stalling speed is approximately 45.

If landing gear is retracted and engine flared over, a slight gust in performance can be expected, and useful load is up to about 120 lb.

Landing gear on the prototype was built by Helvetic to Colonial Aircraft design and is hydraulically retractable. When up, the forward wheel forms a nose bumper. Wheel and brakes are by Goodyear and are 6.00x6 tires. Tread is approximately 12 in.

• **Background**—Colonial Aircraft Corp. is composed of a group of engineers and personnel employed by several local aviation firms. They started design of the Skimmer during December 1945 and began construction of the prototype during their spare time in September 1946. The first flight was made July 1948. Future plans, in addition to putting the Skimmer in production, include seeking of NACA contracts for high-speed research. The company believes that its small craft could make it possible profitably to take on small research deals that have been bypassed by larger concerns.

Fair Air Strip

More than 200 planes and the new air strip opened at the Kansas State Fairground at Hutchinson, Kan., on Friday, August 22 at the fair, recently. The 2200 ft. by 100 ft. strip was used as a small-scale controlled test strip for the big day's traffic. One of the country's largest air markets with less than 40 ft. high is directly west of the strip on the fairground grassland road. Strip was used by testing planes, float plane pilots throughout the week, with 40 planes a day recorded. It is believed to be the first landing facility at a state fair grounds.

Copter Operator To Aid Survey

A. F. Helicopters, Inc., Burbank, Calif., has been awarded a contract to provide helicopter transportation for surveying survey parties in Death Valley, Calif., to U. S. Geological Service. Contract calls for use of two helicopters for a 30- to 60-day period, and the use of one helicopter for an additional 90 to 120 days. Helicopters are required to operate in altitudes from 5000 to 7000 ft. with occasional loadings as high as 9,000 lb., under favorable conditions. Knute Flint, operator of A. F. Helicopters, has recently completed a similar contract for survey mapping with four copters in the Alaska area.

AIR TRANSPORT



LOW DRAG design made possible by turboprop engine is apparent in head-on view of Apollo, with smooth belly flatter than wing.

British Turboprops Threaten U.S. Market

Six transport planes now being developed with two—Apollo and Viscount—already at order-taking stage.

By Robert Holt

LONDON—American transport aircraft makers are likely to encounter stiff competition in the international market from at least two of the British turboprop aircraft now under development.

Leading the British turboprop pack is a main engine is the Victor Aircrafts Viscount. The Viscount prototype recently became the first turboprop aircraft to receive an airworthiness certificate that also means meeting the new KC-100 transport requirements. It has logged more than 300 hours of test flying with Victor test pilot Jack Boyd at the controls, and is the closest of the aircraft to production and delivery for airline service.

• **Apollo Prototype**—Next in line is the Armstrong Whitworth Apollo which now has more than 30 hours of prototype test flying with a second prototype in final assembly.

Chief two turboprop transports now being lighted into two is Handley Page products: The Hermes V and the Marquise II. Neither is considered by British aircraft makers to have a very promising commercial future. The Saunders Roe 175-ton Princess flying boat and the British Embairon II will both be powered by the Bristol Proteon turboprop which is still in the final development stage.

British manufacturers and airline operators agree that the turboprop transport will have a pronounced place in future airline operations in a medium haul transport taking over from the

jetliner at ranges under 1000 miles. They are the turboprop and turboprop power plants as supplementing each other rather than competing in the transport field.

After a detailed study including flights in both planes, the Viscount and Apollo seem to offer the following basic attractions for airline operators.

• **Passenger Comfort**—Victor sales manager Robert Handley claims perspective passengers in the Viscount that once they have flown in a turboprop aircraft they will be reluctant to return to piston-power planes. This is literally true. None lived in the Viscount and Apollo is so low that only aerodynamic noise, which is quenched by engine blander in conventional aircraft, is noticeable. Lack of noticeable vibration in both cockpit and passenger cabin gives a sensation of floating through space and a complete impression of both speed and quiet power for those used to the powerful roar of piston power.

Flying in the Viscount, the new traditional demonstration were made with a glass of water filled to the brim sitting on a table for passengers and not spilling a drop, a travelling paper (one of a quart) balanced on edge on the same table without falling over, and the same coin balanced on the table (pilot's) and remaining upright through 50 degree banks in both directions.

With the Viscount scheduled to begin service in 1972 on British Overseas Airways' West Indian routes, it is likely that the word will spread fast.

Viscount 700

Span—54 ft.
Length—51 ft. 2 in.
Height—38 ft. 9 in.
Max. take-off gross—50,000 lb.
Max. landing gross—47,500 lb.
Gross wing area—945 sq. ft.
Wing loading at max. gross—51.9 lb.
Average cruising speed—516 mph at 25,000 ft.
Takeoff take gross—54,000 lb. (14,670,000)
Fuel capacity—2160 gal.
Cruising speed—37.5 mph.
Engine—four Rolls Royce Dart turboprops (1480 shp, plus 295 lb thrust)
Propellers—4 blades, 10 ft. dia.
Max. range—1200 mi.
Max. range—40-55

Apollo

Span—42 ft.
Length—71 ft. 11 in.
Height—26 ft.
Max. take-off gross—43,000 lb.
Max. landing weight—39,500 lb.
Gross wing area—886 ft.
Wing loading at max. gross—43.6 lb.
Average cruising speed—500 mph.
Engine—4 Armstrong Siddeley (shp plus 394 lb thrust)
Max. range—1200 mi.
Takeoff take gross—53,000 lb. (14,670,000)
Max. range—1200 mi.
Passenger capacity—18-40
Max. range—1200 mi.
Fuel capacity—1860 gal.

Turboprop Transports Show Their Advantages—



TWO-ENGINE CENTER of Viscount, both props on same side forward, is indicated by amount of aileron needed to fly straight



VISCOUNT PANEL has all the engine instruments in center



LONG NACELLAS of Viscount have bulge at base

among American manufacturers in the Caribbean area of the comfort of turboprop airliner flying. It is also likely that Viscount may bring one of the early production Viscounts to the United States since it is hard to exportize turboprop now without a partial demonstration.

►Speed—Both the Viscount and the Apollo offer speed increases over their piston-engine competitors. The Viscount's 315 mph average cruise at 25,000 ft. is faster than all of the current U.S. airlines except the Boeing

Stratocruiser. Apollo's 315 mph average cruise is 16 mph higher than the Douglas Super DC-7 with which it is competing in a regular DC-3 replace-out.

►Maintenance Costs—The turboprop like the turbopiston seems to be paving the way for some radical shifts in airline economics with the possibilities it offers in reduced maintenance costs. Both the Rolls-Royce Dart and Armstrong Siddeley Mamba expect to begin airline service with a minimum of 500 ho-

urshand intervals. Test runs of 500 ho- indicate that very little maintenance is required even now for this interval. Lack of moving parts makes engine maintenance relatively simple, while the lack of vibration will be reflected in less airframe and instrument maintenance. Instrument maintenance now is a particularly risky and expensive headache for the airlines.

►Price—Devaluation of the British pound has brought the price of British aircraft into a sharply competitive focus



HERMES V is Britain's largest and—with its four Bristol Thruston engines of 2300 hp each—most powerful turboprop transport now flying



APOLLO PANEL shows how few engine instruments are needed



APOLLO TURBOPROP emerges from top of wing



APOLLO LOADING of its 24-32 passengers can be accomplished easily and quickly through doors located both fore and aft of wing



"...best in the field"

—says Chief Pilot John Starn, of
NORTH CAROLINA PULP CO., about

RCA'S PAIR OF CHAMPIONS

With two years of installation-proven performance behind them, RCA's "49" Transmitter and "22" Receiver are providing dependable air-to-ground communications between the pulp mill in Plymouth, N. C. and the home office in Camden, N. J.—as well as the 24 widely scattered plants of the parent company (Kirkbride Consumer Corp.). These units provide the pilot no matter how promptly at any time while aloft—provide rapid, trouble-free communications with airport towers and enroute stations.

Says Chief Pilot Starn, "For consistently reliable communication, I run the RCA '49' and '22' here in the field. I like the saving in space and weight they give me. And I like the fact that they don't require much battery current. During one flight, when my generator failed, I maintained normal communications for several hours by operating the radio off the plane's battery until I landed."

Engineered specifically to survive vibrations, the RCA "49" and "22" have passed the type tests for CAA certification. Call your RCA distributor for complete data. Or write Dept. 49, RCA Engineering Products, Camden, N. J.



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RCA "49"
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- 50 watts output, voice or cw
- Automatic hand-to-ground
- 2 independent frequencies
- Completely self-contained
- Weighs only 42½ pounds
- Fits any standard aircraft rack
- Available for 15- or 30-hour operation
- Complete remote control



RCA "22"
RECEIVER

- Continuous tuning over amateur and emergency frequencies, civil, and air-to-air communication bands
- Instant switching to either of four remote-controlled frequencies from 2.5 to 15 Mc. plus almost every frequency
- Can be used for accurate bearing and position-finding with any RCA loop receiver
- Provision for telephone and other communications
- Weighs only 22 pounds
- Fits any standard aircraft rack
- Available for 15- or 30-hour operation
- Complete remote control

with Avianair plans both in the United States and abroad. The Vengeance production version will now be priced at about \$167,000 complete with radio equipment and autopilot, while the Apollo will cost about \$192,000. (A Cessna Laser costs about \$159,000.)

The Vengeance and Apollo are designed to meet slightly different airline requirements and after an interesting contest in British sales philosophies.

Now at U.S.-Victory is among strongly at the American market. Sir Rex Kiwi, Victory's managing director, told Avianair Week he was most interested in going to have a crack at the American market. Finally he sent his chief designer, George Edwards, on a secret tour of U.S. airports to study these requirements. As a result, the production version of the Vengeance (Model 780) has been redesigned to offer increased passenger capacity, added cargo and air air coach seating for high traffic density, short haul routes.

So how a pricing in initial production of 150 Vengences and its operations under way on contracts for about 10 from British and Australia's airlines. First production version of the Vengeance is now under construction at Victory's Weybridge plant with a production rate of about 5 per month planned. Initial deliveries to customers are scheduled for 1967. Victory has moved slowly into production with about a year's flight testing of the Vengeance prototype before plans were set. The Vengeance 780 will be produced in three variations:

- 40-passenger version with a galley midway in the cabin dividing it into two compartments. Payload ranges from 9600 to over 766-cu. blocks to 6900 to over 1280 cu. blocks.
- 35-passenger version without galley utilizing the space for additional freight capacity in an all-cabin version. Payload ranges from 14,800 lb. over 640 cu. blocks to 6900 lb. over 1280 cu. blocks.
- 25-passenger air coach version for use as short haul with high traffic density. Payload ranges from 10,000 lb. over 600 cu. blocks to 6900 lb. over 1280 cu. blocks.

The range payload figures include 750 cu. dimensions to ultimate airport and 45 cu. shipping time at 220 cu. at 1000 ft. These figures indicate that the Vengeance will fit into the present traffic control system working very on the difficulty. Crossing flexibility is enhanced by raising the number of engines in operation rather than reducing power on all engines as in piston powered transports.

Victory officials indicated that the Vengeance 780 would be most economic over a 900 cu. block but could carry 40 passengers over a 3000 cu. block. Maximum range is 1580 mi. with a 4800-lb. payload.

Avianair has had plans for a 40-passenger Apollo but also an intermediate market survey carried on the 25-32 passenger version used at DC-3 replacement as a more suitable size. However fuel capacity and range will be increased in the Apollo production version.

NAL Buys Two DC-6s

National Airlines has bought two new DC-6s as another step in its program to win a larger share of the rich East Coast passenger traffic.

NAL also disclosed it is negotiating for the lease of several other low-

speed planes. Its present fleet includes 2 DC-4s, 7 DC-6s and 11 Lockheed Lodones.

Airworthiness CAR's To Get Yearly Change

Starting Jan. 1, the Civil Aeronautics Board will introduce a systematic procedure of annual revisions covering Civil Air Regulations pertaining to airworthiness of engines, propellers and appliances—possibly designated under CAR Parts 1 to 16.

Formulation of CAR's in the past has been accomplished at intervals since



Castle Nut
AN-310



Plain Nut
AN-312



Deck Nut
AN-314



Sheet Nut
AN-320



Stated Engine Nut
AN-351

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The test means that 20 years of experience, knowledge gained by commercial and military overhaul of over twenty-five thousand aircraft engines, has gone into the engine bearing it. It means that the engine has been disassembled so that the smallest spring, inspected by the industry's most discerning technicians who use the most advanced portable equipment available, X-ray, Magnaflux, and all other inspection devices that have won industry approval.

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and CAA-specified peers from PAC's own ranks of First & Whittier and other leading firms, many of which PAC distributes. Reasonably constant responses are carried on throughout this opinion. And the rest too is the final point of a job expertly done. Assembly line practitioners, which PAC originated for commercial overhaul, has saved hours and money, and these savings are passed on to you at lower prices in the Equinox history of this league and above engineering work of an kind.

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FORMULA FOR SUSTAINABLE ECONOMIC GROWTH

WHAT'S NEW

New Books

"Airline Competition" is the 704-page Harvard Business School study of competition's effects on the quality and costs of airline service and self-sufficiency of U.S. domestic trunk carriers.

The authors, Frederick W. Gil and Gilbert L. Bates, both men with airline industry backgrounds, make a thorough analysis of airline expansion since 1930-1948. They conclude that one of the most capacity-intensive years for the "new" line openings was the domestic trunk operation in 1946-1948 as the result of intense competition authorized by the Civil Aeronautics Board during the war.

Competition which is most consistently ineffective or adverse to the public interest is that where more than two carriers have been authorized to fly between major markets such as New York, Washington, Chicago, Boston, Detroit, Los Angeles and San Francisco, the so-called "hub."

"There have definitely been diminishing returns as the improvement in quality of service rendered to the traveler in these markets with the addition of third and fourth carriers," the book states.

These major markets, the study asserts, could have been the source of substantial profit which would have allowed the carriers involved to achieve a greater measure of self-sufficiency and helped them offset the burden of serving other less profitable or unprofitable markets. Instead, the carriers have been forced to local, even under the potentially ideal earnings conditions the markets presented.

Gill and Bates reject the "presumption doctrine" as an exception which CAB applied in many route cases. That doctrine holds that since competition in itself presents an incentive to improved service and technological development, there is a strong but not conclusive presumption in favor of competition on any route which offered sufficient traffic to support competing service without unreasonable increases in total operating costs.

The authors emphasize that if air transportation is to attain a status of self-sufficiency and carry its fair share of the cost of airways and airports it must be allowed to earn a profit where that is possible unless it definitely is against the public interest.

"Antitrust Competition" is published by Harvard Business School's Division of Research, Soldiers Field, Boston 63, Mass., price \$5.75.
—C.L.A.

ADVERTISERS INDEX

AVIATION WEEK.

OCTOBER 11, 1959

[illegible]

**BABY
TURBOJET
— USES
PACIFIC-WESTERN
GEAR BOX**

For the 1980s, the primary turbine shaft speed of approximately 60,000 rpm is also still considered rapid.

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Awards for Air Safety

We congratulate the last four winners of the Aviation Week safety awards, announced at a special biennial dinner of the Flight Safety Foundation at LaGuardia Airport in New York. Selections were made by the Foundation, in consultation with the National Safety Council, the Aeronautical Council, and the director of the Institute of the Aeronautical Sciences.

High De Flores, research associate in the Department of Physiology of Cornell Medical College received a plaque for his outstanding studies of aircraft accidents to determine the relationship of crash injuries to structural causes. Aircraft manufacturers are studying his conclusions and new or new aircraft, at least, are being designed to conform with some of his recommendations. He has been a member of the Cornell Committee for Air Safety Research since 1947. His work has been described frequently in the magazine.

Dr. Leonard Goetts, president of Safe Flight Instrument Corp., received well-deserved recognition for his part in development of a successful stall warning indicator now widely accepted and adapted by the industry for both civil and military aircraft. Although Aviation Week had nothing to do with selection of the winner, it is interesting to note that this magazine strongly championed the Goetts device editorially as far back as 1947 when there was widespread criticism of the principle mainly because of a lack of understanding of what the indicator was meant to do.

American Airlines System received a plaque for the progress, production and utilization in crew training of the sound motion picture, "This Way Out," illustrating the most efficient procedures to be taken by crew members to assure safety of passengers in the rare instances of an emergency landing. The movie also serves as a National Safety Council lesson.

United Air Lines was cited for progress, production in cooperation with the Coast Guard, and utilization in crew training of sound resources on safety in overwater flying.

As Jerome Lohrer, director of the Flight Safety Foundation, told his audience at the presentation dinner, these awards sponsored by Aviation Week are the only ones of their kind given in the United States. There are other worthy awards given for achievement other than safety, and it is these the designers for which these awards are given will promote safety. Two safety awards are given in England.

It was fitting that these awards were bestowed during the three-day seminar on air transport safety which the Foundation was conducting. This seminar is one of several activ-

ties which the organization has undertaken to promote the exchange of information on safety concepts and developments. It is a very fruitful activity, because the tremendous amount of research and accomplishment by the industry and the governmental agencies in trying to achieve ever greater safety is discussed informally, freely and provocatively.

Those of us who are students of air safety know it to be a fascinating, ever-existing subject requiring continuous pursuit. Mr. Lohrer said in his opening address, "Mereval as an safety statistic must be ignored because the public is not impressed by them. It is now easy to prove by statistics that scheduled transatlantic air travel, for example, has a safety record of a better failure record than travel by ocean liner, in that a cross country journey on a scheduled airline is safer than travel by private automobile.

"But it is difficult to convince the public by statistics that flying on scheduled airlines is safer than other things they do. The public is naturally conditioned to fear flying as when a rare accident occurs, the spectacular play it gets in the press is, even if the statistical nature of aviation tends to confirm unfounded fears in the public mind.

"The public must learn that safety is the rule, accidents the exception. And this can mean only one objective: No fatal accidents, perfection must be our goal."

The Flight Safety Foundation is in a favorable position to help the industry accomplish this task. It is a non-profit organization. It has no axe to grind. It represents no vested interests. Because it is a non-profit group, it enjoys freedom of expression and of action which is denied a governmental or trade organization.

We can only amplify the words of the "New York Times," which published an editorial on the Aviation Week awards Oct. 15: "The Flight Safety Foundation, a nonprofit research organization, deserves much credit for its practice of making these awards and still more for its day-to-day activities in the service of improving still further the already considerable statistical record of safety in the air."

William A. M. Baudica, former Assistant Secretary of Commerce, made the presentation. Harold Hanna, vice president and general manager of American Overseas Airlines, delivered the main address, an address of thanks.

Aviation Week is proud to initiate this unique annual award for the recognition of special effort in the cause of air safety.

—Robert H. Wood



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of All-Weather Flying Division USAF and the Air Transport Association, the ZERO READER takes its place among other Sperry "firsts" the Gyro-Horizon, Directional Gyro, Gyro-Compass and Gyro-Plot. Like these precision instruments it reflects in its performance the laboratory research and careful flight testing which have contributed to

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Beechcraft 50

The Beechcraft Twin Bonanza, shown here in an artist's sketch, is designed primarily as a 5-place airplane but will accommodate 6 people for short range flights. Preliminary estimates indicate a cruising speed of over 180 mph at a range of about 1000 miles. No deliveries expected prior to early 1950; approximately \$30,000 as delivered complete.



Beechcraft 34

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